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10/798,261	03/12/2004	Kazumasa Kobayashi	826.1939	5852

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EXAMINER	
PARIHAR, SUCHIN	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/798,261	KOBAYASHI, KAZUMASA	
	Examiner	Art Unit	
	SUCHIN PARIHAR	2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/5/2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This FINAL office action is in response to application 10/798,261, amendment filed 12/5/2007. Claim 20 is newly presented. Claims 1, 9, 17 and 19 are currently amended.

2. Applicant's remarks filed 12/5/2007 have been fully considered but they are not persuasive. The applicable rejections from the previous office action are incorporated herein.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-20 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Kikuchi et al. (6,385,758) in view of Aubel et al. (US 6,910,200).

5. With respect to claim 1, Kikuchi teaches: a storage device to store contour information about each component (i.e. component contour data is used by layout data converter 111 of Figure 3, wherein the contour data originates from the layout data memory unit 20 of Figure 3, Col 8, lines 1-7); an indication device to indicate a plurality of components to be collectively arranged (i.e. to place or arrange the parts or components, Col 2, lines 45-50) in the electronic circuit and a layout distance between two of the plurality of components (i.e. a positional relationship between components determines a moving distance, Col 4, lines 50-55); a calculation device (layout data

converter, Col 7, lines 55-60) to obtain (layout data is supplied to layout data converter, Col 7, lines 55-60) contour information (see contours of Figure 9, prepared by the layout data converter, Col 7, lines 55-60) for the plurality of components (see all components of Figure 9, supplied to the layout data converter) based on a component contour (layout data including component contours, Col 7, lines 55-65) from the storage device (i.e. layout data memory 20 of Figure 3) that corresponds to each component indicated as the plurality of components (see plurality of components and their contours, Figures 2A and 2B) and calculating (contours are decomposed [i.e. processed], Col 7, lines 55-67) a contour (processing and decomposing component contours and substrate contour lines, Col 7, lines 55-65) of a component region for collectively arranging the plurality of components (i.e. component contours are arranged, Col 8, lines 4-6) using the obtained contour information and the indicated layout distance (i.e. a positional relationship between components determines a moving distance, Col 4, lines 50-55); and a display device to display the calculated contour of the component region on the screen (i.e. layout result display unit 780 may comprise a CRT display, Col 13, lines 55-60).

Kikuchi fails to teach: the layout distance between two of the plurality of components is selectively one of a common distance of all components and a unique distance.

However, Aubel teaches: the layout distance between two of the plurality of components is selectively chosen (circuit designer may specify [i.e. select/selectively choose] a desired amount of spacing [i.e. layout distance] between neighboring cells, Col 6, lines 35-45).

It would have been obvious to one of ordinary skill in the art to incorporate Aubel into the invention of Kikuchi for at least the following reason(s):

Aubel improves the invention of Kikuchi by providing a method to organize [or segregate] one or more cells or regions of a layout in order to improve (i.e. transform) the layout or design of each component.

6. With respect to claims 9 and 17, Kikuchi teaches: indicating a plurality of components to be collectively arranged (i.e. to place or arrange the parts or components, Col 2, lines 45-50) in the electronic circuit and a layout distance between two of the plurality of components (i.e. a positional relationship between components determines a moving distance, Col 4, lines 50-55); calculating a contour of a component region for collectively arranging the plurality of components (i.e. component contours are arranged, Col 8, lines 4-6) using contour information (component contours and substrate contour lines, Col 7, lines 55-65) about the plurality of components and the indicated layout distance (i.e. a positional relationship between components determines a moving distance, Col 4, lines 50-55) said calculating being based on a component contour (layout data including component contours, Col 7, lines 55-65) corresponding to each component indicated as the plurality of components (see plurality of components and their contours, Figures 2A and 2B); and displaying the calculated contour of the component region on the screen (i.e. layout result display unit 780 may comprise a CRT display, Col 13, lines 55-60).

Kikuchi fails to teach: the layout distance between two of the plurality of components is selectively one of a common distance of all components and a unique distance.

However, Aubel teaches: the layout distance between two of the plurality of components is selectively chosen (circuit designer may specify [i.e. select/selectively choose] a desired amount of spacing [i.e. layout distance] between neighboring cells, Col 6, lines 35-45).

It would have been obvious to one of ordinary skill in the art to incorporate Aubel into the invention of Kikuchi for at least the following reason(s):

Aubel improves the invention of Kikuchi by providing a method to organize [or segregate] one or more cells or regions of a layout in order to improve (i.e. transform) the layout or design of each component.

7. With respect to claim 19, Kikuchi teaches:

calculating a contour (processing and decomposing component contours and substrate contour lines, Col 7, lines 55-65) of a component region for collectively arranging the plurality of components (i.e. component contours are arranged, Col 8, lines 4-6) using the obtained contour information and the indicated layout distance (i.e. a positional relationship between components determines a moving distance, Col 4, lines 50-55); and

displaying the calculated contour of the component region on the screen (i.e. layout result display unit 780 may comprise a CRT display, Col 13, lines 55-60), where said calculating is based on a component contour corresponding to each component

indicated as the plurality of components (see plurality of components and their contours, Figures 2A and 2B).

Kikuchi fails to teach: the layout distance between two of the plurality of components is selectively one of a common distance of all components and a unique distance.

However, Aubel teaches: the layout distance between two of the plurality of components is selectively chosen (circuit designer may specify [i.e. select/selectively choose] a desired amount of spacing [i.e. layout distance] between neighboring cells, Col 6, lines 35-45).

It would have been obvious ... (For motivation, see paragraph 5 of this office action, above).

8. With respect to claims 2 and 10, Kikuchi teaches: the indication device indicates a component region to be transformed (i.e. arrangement of the components is uniformly compacted, Col 5, lines 19-25); the calculation device transforms the indicated component region (i.e. compaction is carried out, Col 5, lines 19-25); and the display device displays a transformed component region (i.e. layout result display unit 780).

9. With respect to claims 3 and 11, Kikuchi teaches: the indication device indicates a component region to which attribute information is set (each pair of adjacent components in the layout has constraint data assigned to the pair, Col 5, lines 1-13); and the calculation device sets attribute information about each component included in the indicated component region (i.e. a movable distance for each component is assigned).

10. With respect to claims 4 and 12, Kikuchi teaches: the indication device indicates a plurality of components that are separately arranged in the electronic circuit (i.e. place or arrange parts or components in the layout, Col 2, lines 45-50); and the display device collectively displays the indicated plurality of components as a component region (i.e. layout result display unit 780, Col 13, lines 55-60).

11. With respect to claims 6 and 14, Kikuchi teaches: the indication device indicates a component region to be divided (i.e. a pattern division section for dividing a pattern into a plurality of partial areas, Col 3, lines 43-47); and the calculation device divides the indicated component region into a plurality of component regions (i.e. a pattern division section for dividing a pattern into a plurality of partial areas, Col 3, lines 43-47); and the display device displays the plurality of component regions (i.e. layout result display unit 780, Col 13, lines 55-60).

12. With respect to claims 8 and 16, Kikuchi teaches: the indication device indicates a reference component (i.e. terminal constraint graph prepares a pair of configurations, Col 7, lines 18-23); and the calculation device calculates a contour of the component (i.e. component contours are arranged, Col 8, lines 1-5) region in consideration of relative position relation (i.e. positional relationship between components, Col 4, lines 50-55) between the indicated reference component and the plurality of components.

13. With respect to claim 18, Kikuchi teaches: wherein the component region is determined by type of component (i.e. terminals, wires, Col 8, lines 1-10) and number of components (common component numbers, Col 10, lines 15-25).

14. With respect to claims 5 and 13, Kikuchi teaches: the indication device indicates a component region to be divided (i.e. pattern division section for dividing a substrate into a plurality of partial areas, Col 3, lines 43-47). Kikuchi fails to teach: the display device separately displays at least one indicated component from among a plurality of components included in the indicated component region and collectively displays remaining components as a component region. However, Aubel teaches: the display device separately displays at least one indicated component (i.e. placement tool may load a physical representation of the selected region or cell, Col 19, lines 55-60) from among a plurality of components included in the indicated component region (i.e. selected region, Col 19, line 48) and collectively displays remaining components (i.e. children of the selected region may be displayed, Col 19, line 50) as a component region. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Aubel into the invention of Kikuchi for the following reason(s): Aubel improves the invention of Kikuchi by providing a method to organize [or segregate] one or more cells or regions of a layout in order to improve (i.e. transform) the layout or design of each component.

15. With respect to claims 7 and 15, Aubel teaches: the indication device indicates a plurality of component regions to be integrated (i.e. designer may select an un-placed region or cell and integrate it into the second physical window, Col 19, lines 55-60); the calculation device integrates the indicated plurality of component regions into one component region (i.e. the placement tool may then move the region or cell from the first physical window to the second physical window, wherein said region or cell is

integrated with other cells or regions [i.e. children] that pre-exist in the second physical window, Col 19, lines 45-65); and the display device displays the one component region (i.e. the second physical window displays the integrated one component region in the floor plan window, Col 19, lines 49-52).

16. With respect to claim 20, Kikuchi teaches:

wherein when the indication device indicates a position (see positions of components, Figure 2A) in the electronic circuit for arranging the plurality of components (see arrangement of components, Figure 2A), the display device displays (display unit 101, Figure 3) the calculated contour (various graphic elements displayed, including component contours, see Col 7, lines 55-65) of the component region (see component region(s), Figures 2A and 2B) at the indicated position (see indicated position of component contour, Figure 2B) in the electronic circuit on the screen (layout result display unit, 780 of Figure 1; display unit 101 of Figure 3).

Response to Arguments

17. Applicant's arguments filed 12/5/2007 have been fully considered but they are not persuasive. Examiner's response to Applicant's remarks follow below:

18. Applicant asserts that Kikuchi fails to teach:

a calculation device to obtain contour information for the plurality of components based on a component contour from the storage device that corresponds to each component indicated as the plurality of components, and

calculating a contour of a component region for collectively arranging the plurality of components using the obtained contour information and the indicated layout distance.

Examiner disagrees with this assertion.

19. Examiner points out that Kikuchi teaches:

a calculation device (layout data converter 111 of figure 4 [i.e. calculation device] obtains layout data [i.e. the layout data including contour information], see Kikuchi, Col 7, lines 55-67) to obtain contour information (i.e. layout data including component contours, see Kikuchi, Col 7, lines 55-67; this layout data also includes information related to other components, i.e. via holes, wires, polygonal conductor configurations, component terminals, etc.) for the plurality of components (see discussion of various components and their component numbers, Kikuchi, Col 8, lines 15-30; also see component contours [i.e. shape outlines of the components], see Kikuchi, Figures 2A and 2B) based on a component contour (see component contours if Figure 8, i.e. contours for wiring routes and via holes, information regarding these components and their contours is discussed in Col 11, lines 20-45) from the storage device (layout data memory 20, see Kikuchi, Figure 3, also see segment data memory 30) that corresponds to each component (component numbers are recording in the segment data, Col 8, lines 15-25) indicated as the plurality of components (see discussion of various components and their component numbers, Kikuchi, Col 8, lines 15-30), and

calculating a contour (arranging component contours, Col 8, lines 1-10) of a component region (component contour layer plane, Col 8, lines 1-10) for collectively arranging the plurality of components (see Figures 2A and 2B, collective arrangement of component contours [i.e. the shape outlines of those components]) using the obtained contour information (layout data including component contours, Col 7, lines 55-65) and

the indicated layout distance (upper and lower segments [i.e. components, see Col 8, lines 15-30] are spaced by a predetermined distance [indicated layout distance], Col 11, lines 1-10).

20. Applicant states that "the examiner acknowledges that Aubel fails to teach "one of a common distance of all components and a unique distance". Examiner clarifies the previous office action as such:

As cited in the previous office action, Aubel teaches "a unique distance" as chosen by the circuit designer (see Aubel, Col 6, lines 30-45) which may be applied to all neighboring cells (see Aubel, Col 6, lines 25-45).

21. Applicant asserts that the motivation to combine Kikuchi an Aubel is not sufficient. Examiner disagrees with this assertion.

22. Examiner points out that Aubel improves the invention of Kikuchi by providing a method to organize [or segregate] one or more cells or regions of a layout in order to improve (i.e. transform) the layout or design of each component.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUCHIN PARIHAR whose telephone number is (571)272-6210. The examiner can normally be reached on Mon-Fri, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on 571-272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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